

Collagen peptide®

SOLUGEL®  
The natural solution for skin aging



BEAUTY  
FROM  
WITHIN

 PB LEINER  
PB GELATINS

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# COLLAGEN HELPS YOU FIGHT SKIN AGING

Collagen makes up more than 70% of the skin's dry weight

Skin appearance reflects health and overall well-being. At the age of 30, the human skin begins to change. Aged skin is characterized by alterations of the dermal connective tissue.

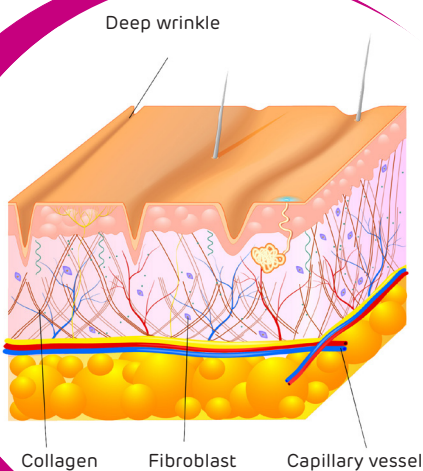
Collagen is an important protein for the connective tissue: in the dermis of human skin, collagen makes up more than 70% of the skin's dry weight. The body is capable of making at least 28 different types of collagen, but the two types that are key to skin health and beauty are collagen type I and type III.

Healthy collagen levels are essential

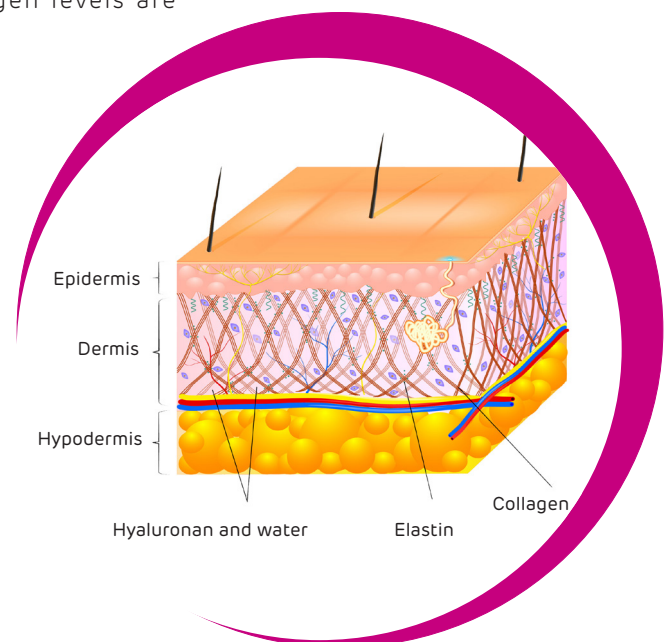
Collagens are particularly important for the strength and resilience of the skin, and alterations in their number and structure are thought to be responsible for wrinkle formation, loss of skin smoothness and hydration.

Hence, healthy collagen levels are essential for

- skin elasticity
- skin smoothness
- skin hydration



OLDER SKIN



YOUNGER SKIN

Collagen regeneration decreases in aged skin

Collagen is a structural protein. It is created from precursor molecules that are formed in special cells in the dermis, called fibroblasts. Fibroblasts also produce other structural elements like elastin and hyaluronic acid.

Collagen formation and breakdown take place in the dermis. Specific enzymes (metalloproteinases) break down collagen while collagen renewal occurs continuously throughout our lives to

repair and replace damaged tissue or to build new cellular structures.

As skin ages, collagen becomes more and more fragmented as enzyme breakdown becomes more active while collagen production by the fibroblasts decreases. As a result, the skin at age 80 demonstrates 4 times more broken collagen than skin at the age of 21-30.



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# SOLUGEL® REVEALS BEAUTY FROM WITHIN

## Collagen peptides trigger the body to make more collagen

In the past decade, there has been increased interest in what can be done to protect collagen levels in the skin, to prevent collagen degradation and to promote synthesis of new collagen even as the skin ages.

Scientific studies show that collagen synthesis can be promoted by small stimulating peptides obtained from natural collagen source.

## Highly digestible protein

Collagen peptides are highly digestible proteins. These proteins, as they are, cannot be absorbed quickly in the gastrointestinal tract.

By breaking them down or hydrolyzing them enzymatically into small peptides, a product is obtained that can be easily absorbed by the human body.

SOLUGEL® is a collagen peptide that can be easily digested. After ingestion, it is further broken down into smaller peptides. Some of which are specifically "attracted" to the fibroblasts.

Several studies on animal and human fibroblasts performed over the last decade show in vitro and in vivo evidence that collagen peptides trigger the body to make more of its own collagen by activating the fibroblasts.



## Precious in so many ways

Our Solugel® collagen peptide dissolves in cold water and has neutral odor and flavor. It is available with different molecular weight profiles and there is a choice of different raw materials, including halal and kosher products.

As highly digestible protein, it is quickly absorbed by the body. Solugel® provides added value for a variety of applications, from food supplements to nutrient enriched foods.

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# SOLUGEL® PERFORMS

Several human clinical trials have been published in peer reviewed scientific journals. They confirm that daily ingestion of 2,5 to 10 g of collagen peptides for 4 to 12 weeks will affect the moisture content, elasticity, fine lines and smoothness of the facial skin in a positive way.



Dosage	Duration	Effect	Reference
2,5 g/day	8 weeks	Significant reduction of eye wrinkle volume of 20% ( $p < 0,05$ )	(1)
3 g/day	12 weeks	Significant increase of : <ul style="list-style-type: none"> <li>• ca. 15% in skin hydration</li> <li>• skin elasticity of about 6,5%</li> </ul>	(2)
3,5 g twice a day	8 weeks	Significant improvement in: <ul style="list-style-type: none"> <li>• periorbital wrinkles and aging (<math>p &lt; 0,001</math>)</li> <li>• overall facial aging (<math>p &lt; 0,006</math>)</li> </ul>	(3)
5 g/day	8 weeks	Significant increase in: <ul style="list-style-type: none"> <li>• skin elasticity of 7% (<math>p &lt; 0,05</math>) with more pronounced effect in women <math>\geq 50</math> years</li> </ul>	(4)
10 g/day	4 weeks	Significant improvement of hydration of the skin of the cheek ( $p < 0,05$ )	(5)

PB Gelatins/PB Leiner provides you high quality Solugel® collagen peptides to reveal beauty from within.

## Reference:

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- (3) Kantor, I., Donikyan, L.A., Simon, E. And Wollschlaeger, B. (2002). Results of a study evaluating the use of a dietary supplement formula in the management of age-related skin changes in women with moderate to severe wrinkling of the periorbital area. *The Journal of the American Nutraceutical Association*, Vol. 5, Iss. 2, 10-19.
- (4) Proksch, E., Segger, D., Degwert, J., Schunck, M., Zague, V. and Oesser, S. (2014). Oral supplementation of specific collagen peptides has beneficial effects on human skin physiology: a double-blind, placebo-controlled study. *Skin Pharmacol. Physiol.*, Vol. 27, Iss. 1, 47-55.
- (5) Ohara, H., Ito, K., Iida, H. And Matsumoto, H. (2009). Improvement in the moisture content of the stratum corneum following 4 weeks of collagen hydrolysate ingestion. *Nippon Shokuhin Kagaku Kogaku Kaishi (J. Soc. Food Sci. Technol.)* Vol. 56, Iss. 3, 137-145.

More information on scientific studies are available on request.



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**SOLUGEL®**  
 BEAUTY FROM WITHIN

Collagen peptide that brings elasticity, smoothness and hydration to the skin

**SOLUGEL®**  
 BONE AND JOINT HEALTH

Collagen peptide that helps maintain strong bones and healthy joints

**SOLUGEL®**  
 SPORTS NUTRITION

Collagen peptide that offers a unique combination of amino acids for sports and active lifestyles

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